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EXAMINER

CHEN, KEATH T

ART UNIT

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Response to Amendment

1. Applicant amendment of the claims, filed on 09/11/2008, in response to the rejection of claims 1, 3, and 5-12 in the non-final office action mailed on 06/11/2008, by amending claims 1 and 8 and cancelling claims 3 and 5-6 is acknowledged and will be addressed below.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1 and 7-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Claim 1 recites the limitation of “one baffle-free combined process space” in the third and fourth last lines. There is lack of support for this limitation in the specification, Particularly in Applicants’ Figure 3 showed the opposite.

Claim 8 recites “means for removing in an axial direction” while the specification provides removing in both axial direction and partly through lateral slots (specification, page 7, lines 9-11).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35 U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1 and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seeser et al. (US 5879519, hereafter '519), further in view of Kuehnle (US 3884787, hereafter '787) and Fu et al. (US 6306265, hereafter '265).

'519 teaches some limitations of claim 1:

A device (Figs. 14-16) for coating a web material (#73A) in a single step PECVD process (magnetron #26-28, same as #30 of Fig. 5, is capable of PECVD by feeding reactive gas; by feeding the same reactive gas to each of #26-28 is a single step PECVD), the device comprising: a vacuum chamber (see Fig. 2, #12, vacuum pump system, col. 6, line 38-39, Fig. 15 is one embodiment of Fig. 2) and a rotating drum (#79, col. 16, line 40) for supporting and continuously (as shown in Figs. 14-16) transporting a web material, more than two independent, substantially identical (each #26-28 are structurally substantially identical to #30 of Figs. 4&5, see Fig. 1), rectangular magnetron electrodes (#26-28, deposition devices include magnetron #30, see Fig. 1), each magnetron electrode (#40A, the altered inverse linear magnetron, Fig. 37A, alternate embodiment of #30, col. 25, line 32-33) being powered with an alternating voltage by its own power supply unit (#242, col. 25, lines 53-55, notice that #242 is available to each magnetron electrode), and a plurality of gas supply lines (#57, Fig. 6, col. 26, lines 1-4; or #37 which more clearly seen in Fig. 4 and 5), the magnetron electrodes are arranged with the magnetron faces facing the circumferential surface of

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the drum and at a same distance the lengths of the magnetron faces extending parallel to a drum axis and the widths of the magnetron faces extending substantially tangential to the circumferential surface, and the gas supply lines extend between neighboring magnetron electrode (#57, shown in Fig. 7, is outside of magnetron, therefore, between neighboring magnetron) and substantially parallel to the drum axis (all these are shown in Fig. 15) and comprise rows of gas outlets (as shown #57 with rows of gas outlet holes, Fig. 6) arranged for gas injection substantially perpendicular to the circumferential drum surface (the gas injection is substantially toward the coating web for the purpose of coating), wherein the magnetron faces and the gas supply lines are arranged side by side (as shown in Fig. 7, #57 and #46 are side by side) to form, together with a part of the circumferential surface of the rotating drum, one baffle-free combined process space (as shown in Fig. 16, there is a space free of baffle; alternatively, in Fig. 15, one baffle free space is between the baffle #32 and the web) and wherein the gas supply lines are connected to a source of only one process gas mixture (the apparatus can be connected to the same gas source in Fig. 15; alternatively, Fig. 16 showed any one of the #26-#28 can be used in all stations).

'519 does not teach the other limitations of claim 1:

The drum being one of electrically grounded, electrically floating, and negatively biased; a center pole and a peripheral pole, the two poles having opposite polarities and the peripheral pole extending around the center pole.

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'787 is an analogous art in the field of PECVD of flexible film (or web, col. 1, lines 20-24), particularly in providing uniform coating (col. 5, lines 5-6; '519, col. 3, lines 29-35). '787 teaches negatively bias drum (#58, Fig. 2) for the purpose of harder deposit with lower resistivity (col. 9, lines 57-63).

'265 is an analogous art in the field of thin film deposition (title), particular in improving sputtering magnetron design (col. 4, lines 31). '265 provides an unbalanced magnetron design (Fig. 7 and Fig. 17) with inner poles having opposite polarities and peripheral pole extending around the center pole; and the inner poles having magnetic flux less than peripheral poles by a factor of 2 (col. 11, lines 54-58), for the purpose of supporting a higher-density plasma deep into the processing area (col. 11, line 60 to col. 12, line 11).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have applied negative bias, as taught by '787, to the drum (#79) to the apparatus in Fig. 15 of '519 for the purpose of harder deposit with lower resistivity; and to have replaced the magnetron of '519 with the magnetron design from Fig. 7 of '265 for the purpose of supporting a higher-density plasma deep into the processing area, with a reasonable expectation of success.

'519 further teach the limitation of:

Claim 7: The magnetron electrode constitutes a twin magnetron (Fig. 7, two B field are shown).

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Claim 8: The device according to claim 1, further comprising means for (#12, pump, Fig. 2; this is treated under 35 USC 112 6th paragraph, see MPEP 2181, as being an exhaust [0018], lines 3-4) removing in an axial direction the gas supplied to the space between magnetron faces and the rotating drum.

Claim 9: The magnetron faces comprise electrode pieces of a non magnetic material (#43, stainless steel, col. 8, lines 52-54).

Claim 10: The electrode pieces (#43) of the magnetron faces comprise channels (#45, col. 8, lines 54-55) for receiving a cooling medium.

Claim 11: The magnetron electrodes constitute magnetrons of an unbalanced type (Fig. 40, alternative magnetron, col. 27, lines 23-37).

'519 further teaches permanent magnets supplying magnetic field of rectangular racetrack configuration, but is silent as to the magnetic strength of the component.

'265 teaches the limitations of claim 12:

The magnetron faces comprise permanent magnetic central and peripheral poles, the central pole having a magnetic strength that is about half of a magnetic strength of the peripheral pole (col. 11, lines 54-58).

Response to Arguments

Applicant's arguments filed 09/11/2008 have been fully considered but they are not persuasive.

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4. In regarding to 35 USC 103(a) rejections of claims 1, 3, 5-12 based on Seeser ('519), Kuehnle ('787), and Fu ('265), Applicants' argument are:

a) '519 fails to teach one baffle-free combined process space being supplied with only one process gas mixture, see the second complete paragraph of page 7.

This argument is found not persuasive as discussed in the claim rejection above.

b) '519 Fig. 37A AC supplies the filament, not the electrode, see the third to the fifth last lines of page 7.

This argument is found not persuasive because the filament #240 is part of the magnetron electrode assembly and is an integral part/function of the magnetron.

c) There is no disclosure that '195 teach filament has its own supply in each magnetron because it is economical to have one AC power for all filaments, see the last three lines of page 7.

This argument is found not persuasive. A person of ordinary skill in the art, without further evidence to the contrary, would have placed the magnetron unit at each station in Figs. 15-16. In addition, Applicant argument on the economy is but one possible optimization factors out of many: for example, for the purpose of more economical mass production, easy of maintenance, and/or modular design, it would have been preferable to mass produce unit like Fig. 37A.

5. In regarding to dependent claims 7-12, Applicants' argument is based on the patentability of the parent claim. Since the parent claim is found not patentable, all dependent claims are not patentable.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEATH T. CHEN whose telephone number is (571)270-1870. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. T. C./
Examiner, Art Unit 1792

/Michael Cleveland/

Supervisory Patent Examiner, Art Unit 1792